

## Water Quality Criteria

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The Spokane River water quality classifications and dissolved oxygen criteria are:

Portion Of Study Area	Classification	Dissolved Oxygen Criterion
Lake Spokane or Lake Spokane (from Lake Spokane Dam to Nine Mile Bridge)	Lake Class	No measurable decrease from natural conditions.
Spokane River (from Nine Mile Bridge to the Idaho border)	Class A	Dissolved oxygen shall exceed 8.0 mg/L. If "natural conditions" are less than the criteria, the natural conditions shall constitute the water quality criteria.

In addition, the Spokane River has the following specific water quality criteria (Ch. 173-201A-130 WAC):

Spokane River from Lake Spokane Dam (RM 33.9) to Nine Mile Bridge (RM 58.0).  
Special conditions:

- (a) The average euphotic zone concentration of total phosphorus (as P) shall not exceed 25 ug/L during the period of June 1 to October 31.

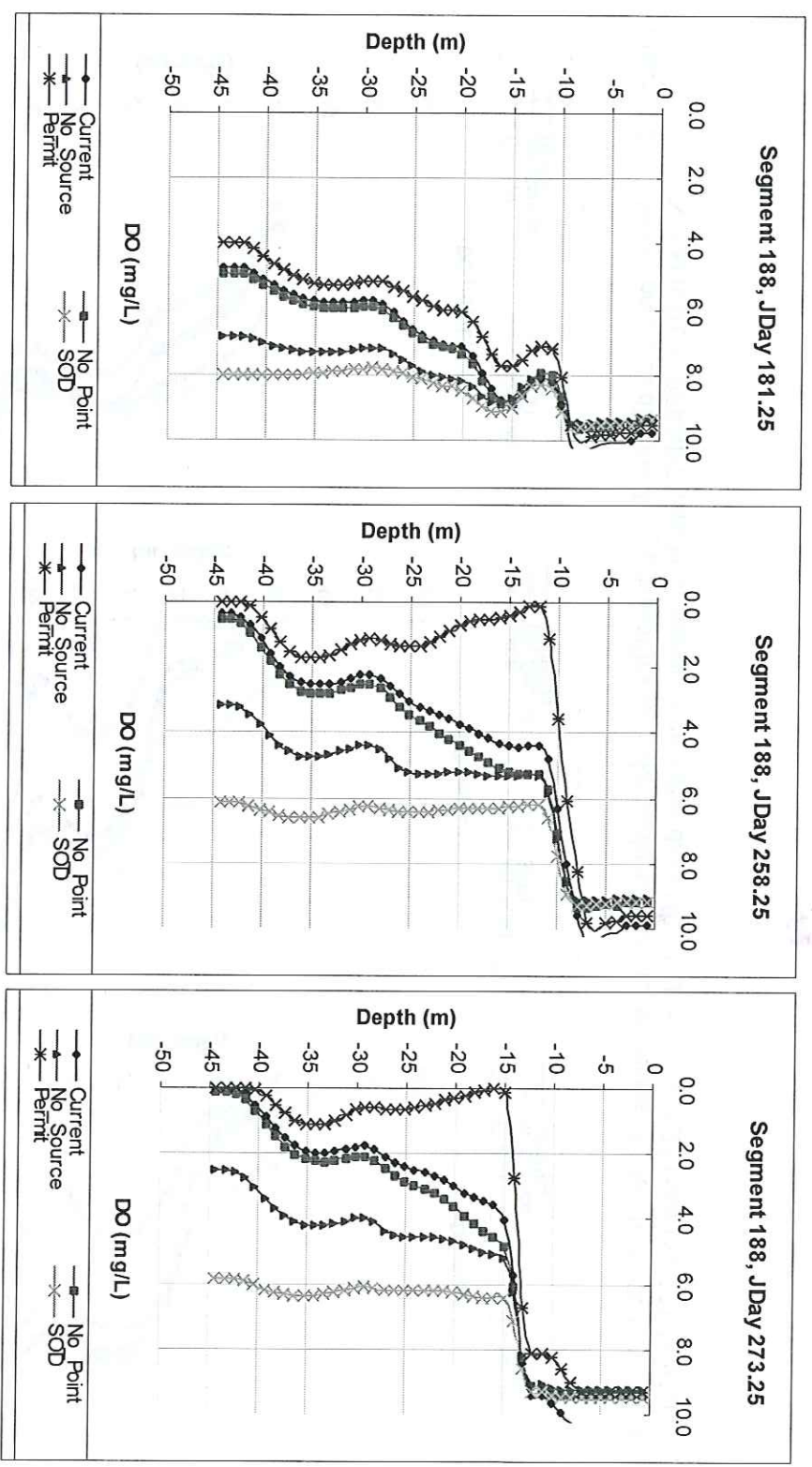


Figure C1. Model predicted dissolved oxygen profiles for Lake Spokane at model segments 188 for the CURRENT, NO-POINT, NO-SOURCE, PERMIT, and SOD scenarios on Julian days 181.25 (Jun 15), 258.25 (Sep 15), 273.25 (Oct 1).



YR	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
<b>TMDL Schedule</b> w/ existing WQ criteria	TMDL Approval	<b>Phase 1 - Interim Nutrient Removal</b>				<b>Phase 2 - Final TMDL Goal - Meet DO Criteria</b> 0.2 mg/L DO decrease from natural mostly by phosphorus control						
<b>Point Sources</b>	Planning for Max TP removal and reuse	Construction				Meet natural background conc or Imp Reuse - Lake Monitor - Complete UAA.						
<b>Nonpoint Sources</b>	Tributary TMDLs completed with Imp Plan				Begin Implement BMPs	Complete implement BMPs w/ monitoring and adaptive approach						

### Estimates of Phosphorus Loading Reduction (2003 Pt Src flows)

	Existing Avg TP load Summer 2003			Max TP removal Load @ 50 ug/L - all to river			Load at TP Final goal @ 10 ug/L to River	
	#/day	Flow MGD		#/day	Flow MGD		#/day	Flow MGD
Discharger								
CDA	6.9	3.2		0.4	3.2		0.1	
Hayden	seasonal land app.			seasonal land app.			early spring P removal?	
Post Falls	4.1	2.1		0.4	2.1		0.1	
Liberty Lake	9.1	0.7		0.1	0.7		0.0	
Kaiser	0.1	0.1 (Outfall 02-03)		3.2	16*		1.3	
IEP	9.8	4.8*		1.1	4.8		0.2	
Spokane City/County	151.0	36.5		14.5	36.5		2.9	
Spokane CSO&Storm	14.2			CSO elim & SW mgmt plans				
<b>Tot PS Load**</b>	<b>195.2</b>			<b>19.7</b>			<b>4.6</b>	
Tributary Load (Natural+NPS)	150.8	YR 2001		150.8	YR 2001		127.0	
<b>Total Load**</b>	<b>346.0</b>	NA		<b>170.5</b>	NA		<b>127.0</b>	
Includes all cooling water								

If effluent TP meets instream target conc. - effluent TP loading can increase with effluent flow as long as in-stream conc. does not increase			
= .10% reduction in trib loads needed to meet TMDL			

\* Includes all cooling water  
 \*\* with estimated P attenuation  
 Point Source compliance schedule implemented via common Administrative Order then rolled into all individual permits within 2 years

Figure 10. Summary - Spokane R. Proposed TMDL and Phosphorus Loading Reduction Strategy (9-20-04)

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Allowable Pollutant Load above Natural Conditions (derived from values presented in Tables 1 & 2 of submittal report)

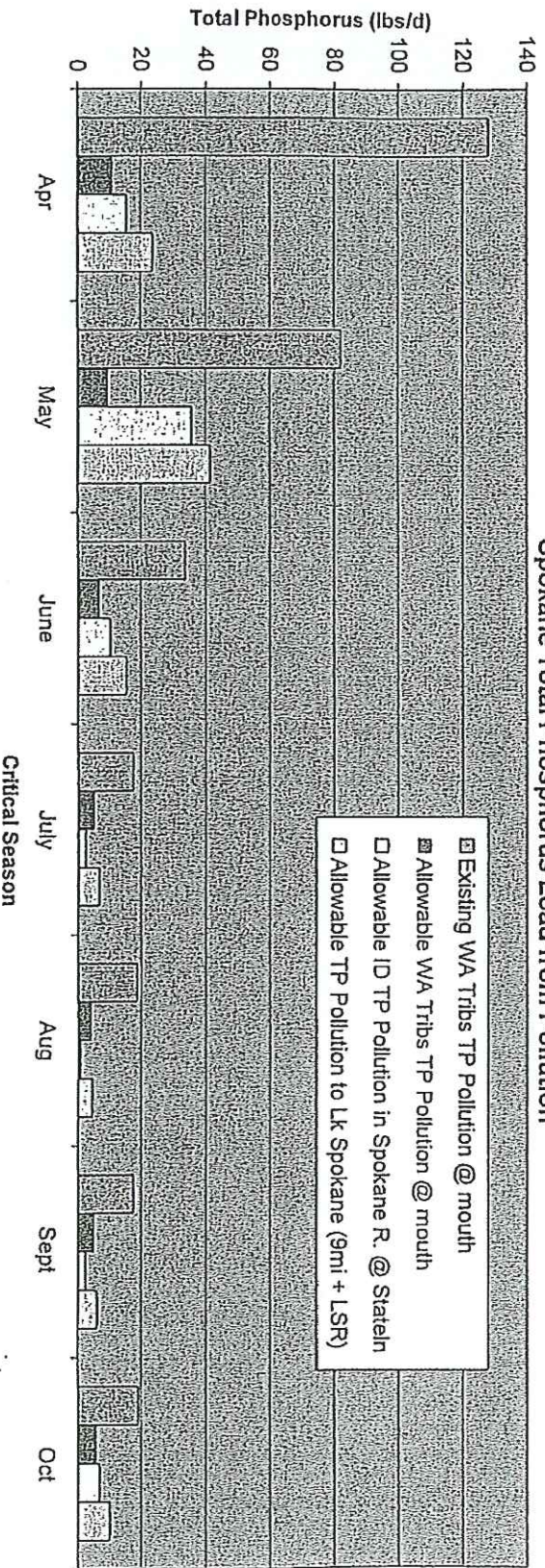
Month	Existing WA Tribs TP Pollution @ mouth	Allowable WA Tribs TP Pollution @ mouth	Allowable ID TP Pollution in Spokane R. @ Statein	Allowable TP Pollution to Lk Spokane (9mi + LSR)	% Reduction in WA tributary pollution load
Apr	128	10.8	15.5	23.6	92
May	82	9.3	35.4	41.2	89
June	33.6	6.6	10.2	15.3	80
July	17.6	5	2.4	6.7	72
Aug	18.8	4.1	0.7	4.4	78
Sept	17.6	5	2.3	5.9	72
Oct	19.1	5.6	6.8	10.1	71

Lake Spokane Natural Background TP Load (9mi + LSR)

287.5  
594.3  
225.3  
98.9  
67  
79.7  
120.3

WA tributaries include Hangman Cr., Coulee Cr., and Little Spokane River

### Spokane Total Phosphorus Load from Pollution





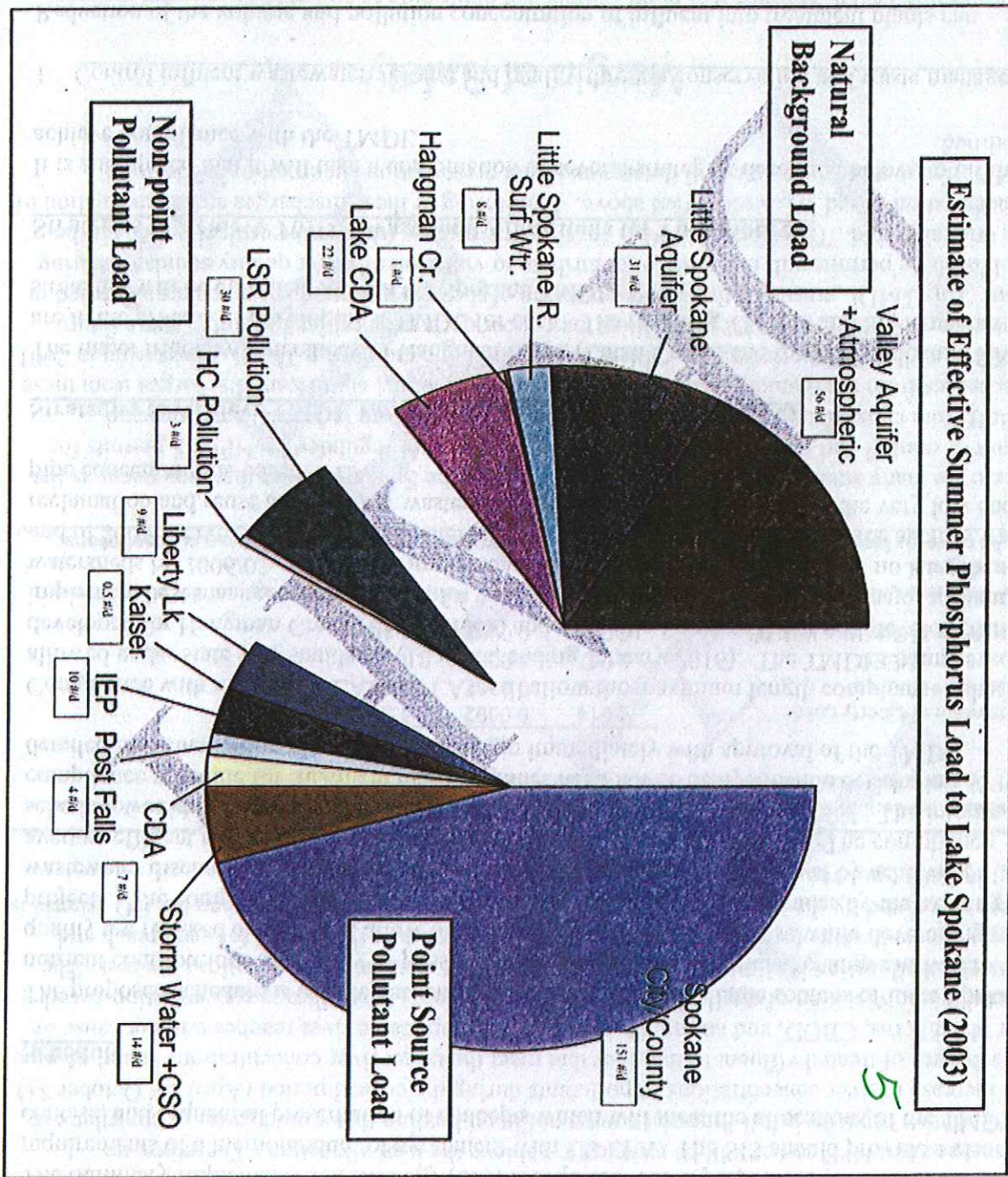
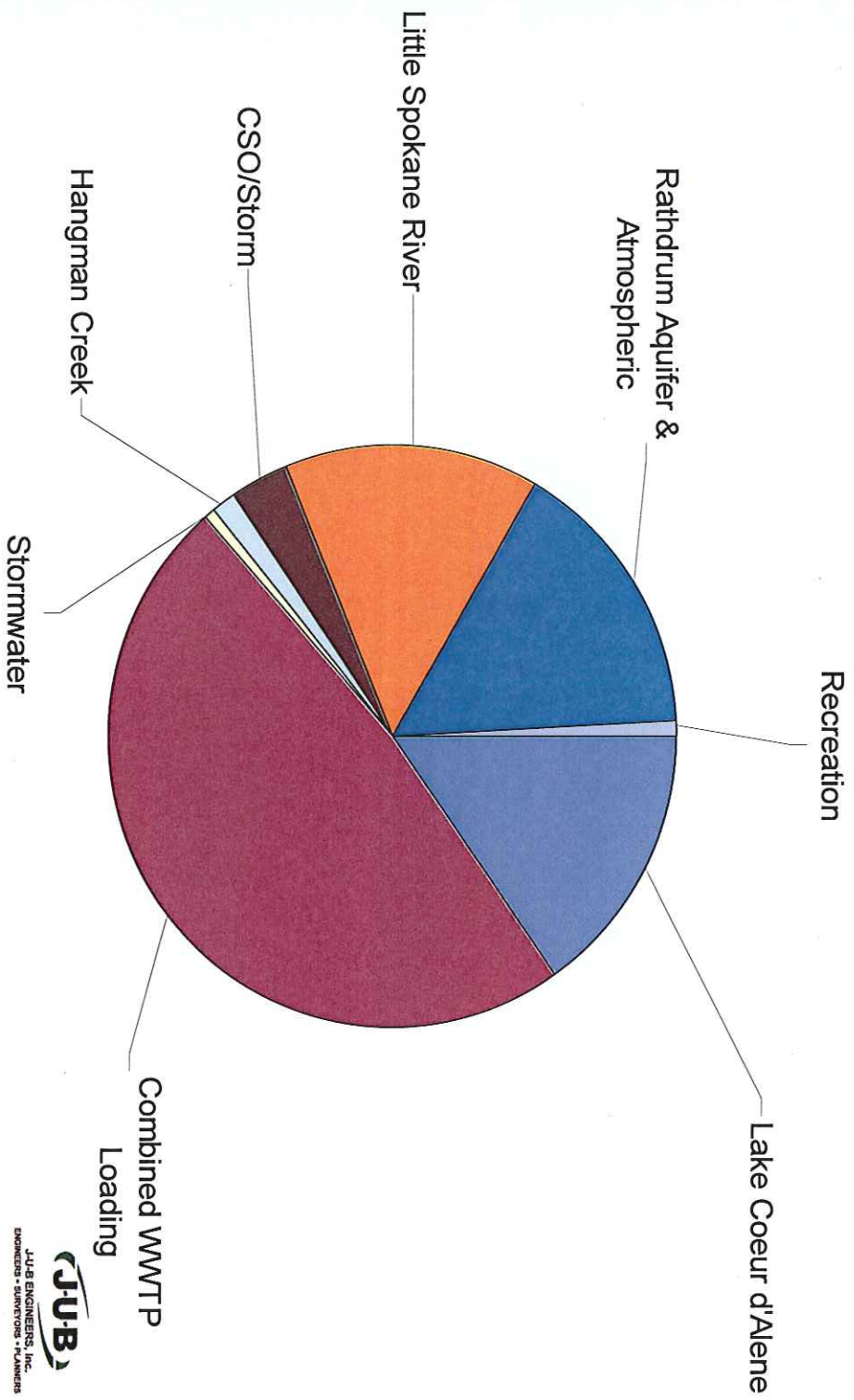


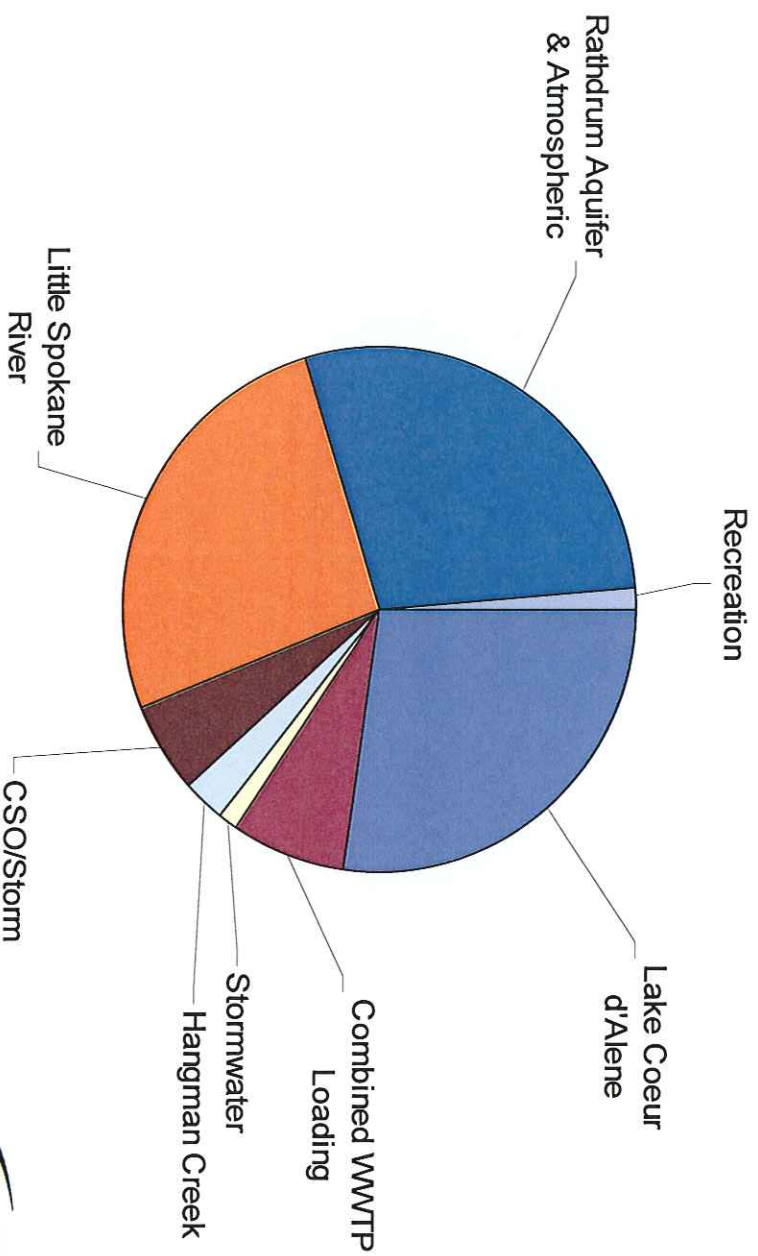
Figure 9. Estimate of 2003 effective summer (June – October) phosphorus loading to Lake Spokane using natural condition estimates from CE-QUAL-W2 and attenuated point source loadings estimated from the P- attenuation model for a 1-in-10 low flow year.



# Lake Spokane Phosphorous Loads with Current WWTP Flows



## Lake Spokane Phosphorous Loads Plus 50 Microgram Phosphorous at Current WWTP Flows





## Lake Spokane Phosphorous Loads Plus 10 Microgram Phosphorous @ Current WWTP Flow

